

Inconel X-750 Datasheet

Inconel X-750 is a precipitation-hardened nickel-chromium alloy with excellent strength and oxidation resistance at high temperatures.

Alloy / Grade	Inconel X-750
Common Forms	Spring Wire, Round Bar, Sheet, Strip.
Key Feature	Excellent relaxation resistance (retains spring force at heat).
Service Focus	Retains over 90% of its initial stress after long-term exposure to temperatures up to 1100 deg F, making it superior for critical spring applications.

1. Product Overview

Inconel X-750 is a precipitation-hardenable nickel-chromium alloy used for its corrosion and oxidation resistance and high strength at temperatures up to 1300 deg F (700 deg C). Ideally suited for components that require high relaxation resistance, such as springs and bolts .

Grade	Core Description	Typical Service Focus
Inconel X-750	Inconel X-750 is a precipitation-hardenable nickel-chromium alloy used for its corrosion and oxidation...	If your application involves springs or fasteners operating in high-temperature environments (up to 1300...
Supply Capability	Spring Wire, Round Bar, Sheet, Strip.	Standard mill forms, cut-to-size material and project supply
Technical Review	Confirm final values by product form, heat treatment and material certificate	Retains over 90% of its initial stress after long-term exposure to temperatures up to 1100 deg F, making it...

2. Key Features

- If your application involves springs or fasteners operating in high-temperature environments (up to 1300 deg F), Inconel X-750 is the industry...
- Retains over 90% of its initial stress after long-term exposure to temperatures up to 1100 deg F, making it superior for critical spring applications.
- Achieves high strength properties through heat treatment (precipitation hardening) similar to Alloy 718, but is often more cost-effective for springs.
- Offers excellent resistance to chloride-ion stress-corrosion cracking and oxidizing environments, comparable to Alloy 600.

Further information under:	https://www.nickelcasting.com/nickel-alloys/inconel-nickel-alloys/inconel-x-750/
Home page:	www.nickelcasting.com
Email:	ni@Nickelcasting.com

Technical Data

The following values are provided as general reference data for engineering review and procurement planning. Confirm final values against the applicable specification, product form, heat treatment condition and material certificate.

3. Chemical Composition (%)

Element	Content (%)
Nickel (Ni) + Cobalt	70.0 min
Chromium (Cr)	14.0 - 17.0
Titanium (Ti)	2.25 - 2.75
Aluminum (Al)	0.40 - 1.00
Niobium (Nb)	0.70 - 1.20
Iron (Fe)	5.0 - 9.0

4. Standard Specifications

Product Form	Standards (ASTM / AMS / ASME)
Bar, Forgings	ASTM B637, AMS 5667, AMS 5671
Spring Wire	AMS 5698 (No. 1 Temper), AMS 5699 (Spring Temper)
Plate, Sheet, Strip	AMS 5542, AMS 5598

5. Mechanical Properties - Typical at Room Temperature

Property	Typical Values (Room Temp)
Tensile Strength	160 - 190 ksi (1100 - 1310 MPa)
Yield Strength (0.2% Offset)	115 - 140 ksi (790 - 965 MPa)
Elongation	15 - 25 %
Hardness (Rockwell C)	30 - 40 HRC

Note: Values are typical or specification reference values. Purchase requirements should be confirmed against the required standard, drawing and material test report.

Applications and Ordering Information

Use this section to define inquiry requirements and accelerate technical confirmation for Inconel X-750 products.

6. Typical Applications

Industry / Area	Typical Components
Industrial Service	The primary application: helical springs, disc springs, and torsion bars operating in hot engines or valves.
Chemical / Process Equipment	Rotor blades, wheels, bolts, and other structural members requiring high strength.
Oil, Gas & Marine	Thrust chambers and high-pressure cryogenic pumps.
High-Temperature / Power	In-core structural springs, control rod components, and fuel element spacers.
Precision Components	We specialize in Inconel X-750 wire and bar stock for spring manufacturing. Available in various tempers to meet AMS specifications.

7. Available Supply Forms

Pipe & Tube	Plate & Sheet	Bar & Rod
Pipe Fittings	Flanges	Wire & Strip
Forgings	Custom Cutting	Project Supply

8. Information to Include When Requesting a Quote

- Required grade: Inconel X-750, with ASTM / ASME / AMS specification if applicable.
- Product form: pipe, tube, plate, sheet, bar, fittings, flanges, forgings or machined parts.
- Dimensions: outside diameter, wall thickness, length, width, thickness or drawing number.
- Quantity, delivery destination and required delivery schedule.
- Special requirements: cutting, machining, heat treatment, NDT, PMI, test report or material certificate.

Company Information	
Address	Shanghai, China
Email	ni@Nickelcasting.com
Home Page	www.nickelcasting.com
Product Page	https://www.nickelcasting.com/nickel-alloys/inconel-nickel-alloys/inconel-x-750/

Disclaimer

This datasheet is provided for general reference only. Actual values may vary by product form, heat treatment, manufacturing condition and applicable specification. Please contact us for confirmed specifications, test reports and material certificates before ordering.